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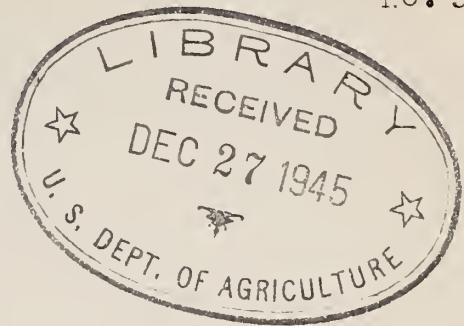
SOIL CONSERVATION LITERATURE  
SELECTED CURRENT REFERENCES

V.1

September/October 1937

No. 5

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Let us have knowledge - all we can get;  
But let us express it so we can understand it,  
And translate it into efficient action so it  
will do some good.

--Maury Maverick, in  
"A Maverick American"

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# SOIL CONSERVATION LITERATURE

V.1

No. 5

## PERIODICAL ARTICLES

### Buffer Strips

Fenner, O.L. Meadow buffer strips in place of terraces. Agric. Leaders' Digest 18(5): 11-12, illus. July 1937.

### Climatic Studies

Thorntwaite, C.W. Microclimatic studies in Oklahoma and Ohio. Science 86 (2222): 100-101. Jly. 30, 1937.

Detailed studies of rainstorms by the Soil Conservation Service has brought recognition of two distinctive forms. "One type, of comparatively short duration and high intensities (the cold front type) is especially significant in the production of gully and sheet erosion and occasional local floods. The other type of longer duration and lower intensities, but ordinarily bringing larger amounts of rainfall (the warm front type) is significant in stimulating mass or gravity movements of soil, such as slumping field slides and caving of gully walls and heads, and is invariably the cause of major floods..."

"Such studies are making it possible to approach the climatic problems relating to soil and moisture conservation, land use and flood control on a more intelligent basis."

Visher, S.S. Regional contrasts in erosion in Indiana with especial attention to the climatic factor in causation. Bull. Geol. Soc. Amer. 48(7): 897-929. Jly. 1, 1937.

Three types of erosion are extensive: sheet erosion, gullying, and wind erosion.

"The Problem: How great are erosional contrasts in Indiana; what influences have produced them? The Method: An analysis of the soil erosion map recently issued by the United States Soil Conservation Service has been made; field observations have been made in all the counties of the State, in order to add supplementary data; maps showing the distribution of several factors presumably contributing to the causation of the contrasts were prepared and compared in detail with the erosion maps. Conclusions: Despite moderate differences with respect to elevation, relief, lithology, structure, geologic history, and climate, Indiana has notable regional contrasts in soil erosion. Factors causing these include contrasts in local relief, soil types, recency of glaciation, climate and land use. Climatic contrasts clearly have played a larger part than has hitherto been appreciated. Regional contrasts in rainfall intensity - a factor hitherto almost ignored, because evidence as to its existence had not been compiled - appears to be of considerable significance in causing part of the observed erosional contrasts."

### Contour Tillage

Contour strips cost less to operate. U.S.Soil Conserv.Serv. Soil Conserv. News Letter (Heshanic Watershed ed.) 22 (12): 4. May 15, 1937.

Figures kept by a farmer in Avoca, N.Y. show that it cost 48 cents less per acre to plow his contour strips than his square field.

Old bossy grazes on the contour now. Farmer-Stockman, page 472. Aug. 1, 1937.

On the 140,000 acres of pasture land treated by the Soil Conservation Service in the panhandles of Texas and Oklahoma, eastern New Mexico, southwest Kansas and eastern Colorado, the grass is much greener and thicker along contour rows and tests have shown that moisture penetration has increased more than 100 percent in some places.

Wind erosion program closes. Dry land counties of state adopt contour tillage as control practice. N.M.Ext.News 17(7): 1. July 1937.

The Emergency Wind Erosion Control Program, started in March 1936 and ended July 1937 "has proved successful in dry land counties" of New Mexico. Nearly two million acres have been farmed on contour lines and "it is safe to say that this practice is so well established that farms in eastern New Mexico will continue to follow it in future years."

### Dams

Jones, E.R. Drop inlet soil saving dams. Agr. Engin. 18(8): 349-351, illus. August 1937.

### Evaporation

Young, A.A. Evaporation loss in covered reservoirs. Engin. New-Rec. 119(11): 432-434, illus. Sept. 9, 1937.

Study of evaporation characteristics of covered reservoirs with limited ventilation indicates that little water is conserved through use of roof structures.

Zoch, R.T. On the relation between rainfall and stream flow - III. U.S. Mo. Weath. Rev. 65(4): 135-147. April 1937.

"This article of the series deals with the evaporation which takes place after a rain stops, and its effect on stream flow."

### Fertilizers

Buie, T.S. Relation of soil and water conservation to the fertilizer industry. Fert. Rev. 12(4): 10-11, 15, illus. Jly/Aug. 1937.

Commercial fertilizer is used to stimulate the production of better crops, but this is not profitable on badly eroded soils. It is pointed out that with more moisture fertilizer gives better results. Soil and water conserving practices are therefore recommended.

Also in Amer. Fert. 27(2): 7-9, 24-26. Jly. 24, 1937.

Hutcheson, T.B. Plant food needs of soil-conserving crops. Fert. Rev. 12(4): 6-7, illus. Jly/Aug. 1937.

The author is of the opinion that much of the erosion commonly attributed to tillage is due to poor land, and is "quite certain that little progress

## Fertilizers (Cont'd)

Hutcheson, T.B. (Cont'd)

will be made in establishing ground cover on erosive soil until we realize that soil-conserving crops, like all other crops, must have plant food."

Article based on above appears in South. Planter 98(9):10,33. September 1937. Title is "Fertilizing legume crops."

## Flood Control

Cromie, G.A. Primeval flood control. Forests & Outdoors 33(6):181-182. June 1937.

Encourages the re-introduction of the beaver because of its importance in dam building and flood control.

## Grass

Bressman, E.H. Brone, a palatable dry-weather grass tailored for the present swing to pasture crops. Successful Farming 35(8):17,32, illus. August 1937.

Cates, J.S. Building the temple. Country Cent. 107(8):7-8, illus. August 1937. Research in grasses.

Explains why better grasses are needed for better agriculture and for better protection against erosion.

Fults, J. Plans for the wider use of native and introduced grasses for soil conservation in Nebraska. Nebr. State Bd. Agr. Ann. Rpt. 1936: 235-240. [1937]

Hubbard, C.E. Sand-binding grasses in the Falkland Islands. Bull. Misc. Inform. Kew no. 4, page 274. 1937.

Armophila arenaria, Elymus arenarius.

Jarnagin, M.P. Conserving soil with grass. Agric. Bull. (Atlanta and West Point Railroad Co.) Spring 1937, pages 1 - 3, 25, illus.

Table gives pounds of soil lost per acre by erosion on Georgia University farm from 1933-1936.

## Highway Erosion Control

Control of erosion along TVA highways. Report of Snyder and Davis to Highway research board describes methods. Contract and Engin. Mo. 34(6):28, 45, illus. June 1937.

Abstract of report by John E. Snyder and C.C. Davis given at 16th annual meeting of the Highway Research Board of the National Research Council in November 1936.

Dreibelbis, F.R. and Kohnke, Helmut. Stabilization of roadside banks. Soil Conservation 3(2):38-40, 52, illus. August 1937.

## Land Utilization

Coordination of Department of Agriculture land use planning activities. U.S. Dept. Agr. Resettlement Admin. Div. Land Util. Land Policy Circ., pages 3-4. July 1937.

Mr. M.S. Eisenhower, Director of Information and Chairman of the Department's

### Land Utilization (Cont'd)

Coordination of Department of Agriculture land use planning activities. (Cont'd) Flood Control Advisory Committee, has been appointed Coordinator of Land Use Planning, attached to the Office of the Secretary to coordinate existing land use planning work, and wherever necessary, to initiate and stimulate land use planning as it relates to the work of the whole Department.

Cutler, J.S., Paschall, A.H. and Conrey, G.W. Some problems in adjusting land use. Ohio Agr. Exp. Sta. Bi-monthly Bull. 22(186):97-104. May-June 1937; 22 (187):118-125. Jly/Aug. 1937.

### Orchard Management

Brogger, J.T. Controlling soil erosion and water run-off in the Pennsylvania orchard. Penn. State Hort. Assoc. Proc. 78:44-51. 1937.

### Plant Cover

Clover, E.U. Vegetational survey of the lower Rio Grande Valley, Texas. III. Coastal climate associations. Madrone 4(3):77-100. July 1937.

Fordcival, E. Deforestation and streams. Te Mana Ngahere (The New Zealand Journal of Forestry) 4(1):36-39. 1936.

Bibliography: p.39.

Consideration is given to the effect of vegetative cover changes on the reduction in growth of freshwater trout in New Zealand.

"The conclusion which is forced on the student is that, whatever effects deforestation has had upon streams, it has not significantly brought about starvation of trout through destruction of aquatic organisms and their habitat. It has, however, acted on the fish stock in places by allowing access to the streams and settlement of human populations, both of which play an important part in bringing about changes in the character of fish stocks."

### Shipmast Locust

Detwiler, S.B. The history of shipmast locust. Jour. Forestry 35(8):709-712. August 1937.

"Shipmast locust (*Robinia pseudoacacia* var. *rectissima*) is a much better tree than the ordinary black locust (*Robinia pseudoacacia* L.) in erosion control operations."

Hall, R.C. Growth and yield in shipmast locust on Long Island and its relative resistance to locust borer injury. Jour. Forestry 35(8):721-727, illus. August 1937.

Swingle, C.F. Experiments in propagating shipmast locust. Jour. Forestry 35 (8):713-720, illus. August 1937.

Experiments undertaken by the Soil Conservation Service nurseries, Arlington Experiment Farm, Rosslyn, Va.

Silt

Ellis, M.M. Pollution and aquatic life. Amer. Wildlife 26(3):38, 45-46, illus. May-June 1937.

Presented at the Second North American Wildlife Conference, St. Louis, Mo., March 4, 1937.

Erosion silt is recognized as the major silt problem in inland waters.

Soil Conservation. Legislation

Glick, P.M. State legislation for erosion control. U.S. Dept. Agr. Resettlement Admin. Div. Land Util. Land Policy Circ., pages 19-24. July 1937.

Reasons for formulating the Standard State Soil Conservation Districts Law, what it provides, how districts are organized, how regulations are enforced and recent action of state legislatures in adopting legislation along the lines of the Standard Law.

Riddel, Glenn. Arkansas fights soil erosion. Ark. Farmer. 39(18):6-7, illus. June 1937.

Includes mention of provisions of the Arkansas Soil Conservation Districts Law, Act no. 167 recently passed by the Arkansas Legislature.

Soil control act is signed by governor. Enables farmers and committee to accept federal aid toward conservation program. Md. Farmer 21(7): 5. July 1937.

Act signed by governor of Maryland in spring of 1937.

Visher, S.S. Reduction of soil erosion on Indiana hillsides declared an urgent problem. Abundant rainfall in cooler months and type of crops creates relatively rapid washing away of fertile fields. Outdoor Indiana 4(4): 20-21, illus. May 1937.

Includes map of Indiana showing the various percentages of areas having considerable sheet erosion and gullying.

"Legislation to encourage the growing of woods or grass on hillsides is highly desirable. At the last session a bill was introduced by the Conservation Department providing benefit payments for the use of hillsides so as to conserve their precious soil. Hillsides devoted to forests would receive benefit payments equal to from three-fourths to four-fifths of the taxes levied against the land. Hillsides devoted to grass would receive benefit payments of half the taxes... This bill got caught in the legislative jam but a similar bill will be introduced early in the next session."

Soil Erosion. Economic Aspects

Ferry, J.F. Land problems and industrial exploitation in Monongalia county, West Virginia. U.S. Dept. Agr. Resettlement Admin. Div. Land Util. Land Policy Circ., pages 15-18. July 1937.

The inevitable result of paying scant attention to soil conserving practices has been a general depletion of soil fertility and county-wide erosion is evident.

Human, economic and industrial factors have also had a share in the depletion of land resources in this territory.

Soil Erosion. Economic Aspects. (Cont'd)

Holson, Peter. Information on soil conservation. Okla. Agr. Exp. Sta. Current Farm Economics 10(1):13-15. February 1937.

An attempt is made to reduce replies received from experiment station directors and regional directors of the Soil Conservation Service into a general perspective of available knowledge of the soil conservation problem.

"Indications are that physical conservation, that is, prevention of erosion by means of mechanical structures or by means of certain types of plant cover, can be achieved generally. The economics of conservation, on the other hand, is an almost unexplored field."

Soil Erosion. Foreign Countries

Clayton, E.S. Our prodigal now countries. Country Gont. 107(9):20, 86-88, illus. September 1937.

The author was deputized by his government (Australian Dept. of agriculture) to make a trip around the world and study first hand the problem of erosion. He writes of erosion in Australia and compares conditions there with the situation in other lands.

Croucher, H.H. Soil erosion in the Blue mountain range. Jour. Jamaica Agr. Soc. 41(5):270-271. May 1937.

Attempts to counteract the soil-washing problem on the part of the coffee planters of Jamaica include mulching, planting overcrop beans, digging trenches.

The cultivation of skullion which is the chief crop is particularly inducive to soil washing. The author of this article suggests precautionary measures.

Detwiler, S.B. Fifty years' experience gives Japan simple, effective program. Soil Conserv. 3(1):9-10, illus. July 1937.

Erosion control plants have, in Japan, been reduced to a very few species having outstanding qualities and wide adaptability.

Fallon, F. L'érosion du sol dans les plantations de café. Bull. Inst. Agron. et Stat. Rech. Genbloux 6(2):120-130. May 1937.

Soil erosion in coffee plantations.

English, German and Dutch summaries.

Gorrie, R.L. Erosion survey of the Uhl valley. Indian Forester 63(4):218-222, illus. April 1937.

"In the summer of 1936 a detailed survey of erosion conditions in the catchment area of the Uhl river was undertaken at the request of the Chief Engineer, Electricity, Punjab, as some anxiety has been felt for the safety of the project owing to the occurrence of uncontrollable floods in the summer and a very poor free-water flow in the winter. It is not proposed to describe the engineering project in detail, but this survey constitutes the first attempt in India to make a detailed survey of erosion conditions and a short outline of the methods adopted may, therefore, be of some interest to readers."

Gorrie, R.L. Torrent action interferes with canal efficiency. Current Sci. 5 (2):62-67, illus. August 1936.

An account of one specific instance in Punjab, India, where torrent intensity has been measured and its effects correlated with these measurements. These "actual statistics" are said, by the author, to verify "facts long known to

Soil Erosion. Foreign Countries (Cont'd)

Gorrie, R.H. (Cont'd)

"many officials and engineers," namely, that the absorptive capacity of the soils of the catchments areas has been interfered with through destruction of plant cover.

The Forest Department reclamation regime has proved the value of torrent control and reduction in peak loads by cultivation of largely waste land. In one area which, during the past 30 years, has been intensely cultivated, terraced and properly maintained by watt bandi (contour ridging) no severe floods have been recorded for some time.

Gussak, V.B. Struggle against erosions in connection with the utilization of slopes for the cultivation of citrus plants. Pedology 2:309. 1937.

Abstract from article in Russian publication.

"The article is the outcome of an inspection of a number of Soviet farms, of the Lemon-mandarino Trust in Abkhasia, conducted by a group of specialists on behalf of the Transcaucasian Scientific Research Institute of Water Economy in 1933 under the general guidance of the author and according to the programme and methodologies, elaborated by him, with the aim of establishing the degree and character of soil erosion at these State farms and of elaborating measures for the protection of the soils from erosion..."

"The author dwells on the question of terracing the slopes... Detailed calculations of the possible types of terraces, accounting for the agro-soil and economic demands, are provided in 13 tables."

Lowdermilk, W.C. Sand rivers of China. Soil Conserv. 3(1):1-4, 26-27, illus. July 1937.

"These sand rivers are believed to derive the vast quantities of sand partly from the general sorted deposit from the erosion of the mountainous areas of igneous rocks in recent geologic time, and partly from the accelerated erosion following the general baring of the slopes through cultivation... Today, on these sloping lands, bared of their forests, the cultivation of corn and wheat, tea and China root crops goes on."

However, the Chinese people have indicated that they are not entirely unaware of the serious condition of their lands and waters. Funds have recently been allocated for a few experimental soil erosion control stations in an effort to pattern their control program after the one now well under way in the United States.

Olson, Lois. South African problems parallel those of Great Plains. Soil Conserv. 3(1):18-21, illus. July 1937.

Indicates resemblance between the eastern two-thirds of South Africa and the southern Great Plains of the United States as to climate, rainfall, population, effects of grazing on vegetation and consequent erosion; initiation of erosion control; ecological investigations and South African Government "schories - A, B and C."

Path, Jacob. The terracing of slopes for citrus plantations. Hadar 9(12): 282-285. December 1936.

"Describes soil erosion measures which have been used successfully in Palestine for citrus plantations under irrigation."

Soil Erosion. Foreign Countries. (Cont'd)

Phillips, John. Fire in vegetation: a bad master, a good servant, and a national problem. *Jour. So. African Bot.* 2(1):35-45. January 1936.

"References," p. 45.

Destruction and deterioration of South African vegetation and its results, including soil erosion.

Ringland, A.C. Sybaris: an example of watershed control in operation. *Soil Conserv.* 3(1):11-13, illus. July 1937.

In Italy a watershed becomes not only a project for flood control but a unit of land planning and administration within which all resources are developed to serve their highest usefulness. The Sybaris project in Calabria is an excellent example, according to the author.

Stewart, G.R. The Punjab plans a coordinated attack. *Soil Conserv.* 3(1):14-17, 21, illus. July 1937.

Two main factors affecting plant cover in India are the sacred cow and the dense population. Acute erosion is evident, and control projects recently outlined are given in the article.

Mention is made of the formation of "bandhs" or reclamation basins in the tributaries of badly eroded and gullied streams.

Stewart, G.R. Slowing the raindrops in Java and Sumatra. *Soil Conserv.* 3(1): 22-25, 28, illus. July 1937.

Deterioration of soil and land use system are cited as important contributors to soil erosion in Java and Sumatra.

The "sawah" system of wet-land rice culture is "probably the greatest factor responsible for protection of soils." Plantation terracing is also helpful.

Considerable experimental work is being carried out by the Forestry Experiment Station.

Soil Studies

Smith, F.B., Brown, P.E. and Russell, J.A. The effect on organic matter of the infiltration capacity of Clarion loam. *Jour. Amer. Soc. Agron.* 29(7):521-525, illus. July 1937.

"The infiltration capacity of Clarion loam in a 4-year rotation of corn, corn, oats and clover was found to be relatively high, but it was increased materially by additions of manure."

Stauffer, R.S. Local variability in Wisconsin till and its influence on soil character. *Amer. Jour. Sci.* 34(201):235-243. September 1937.

"Literature cited: "p. 243.

Stephenson, R.E. The conservation of physical soil properties. *Rural New Yorker* 96(5399):427. May 22, 1937.

Explains changes in physical properties that occur in soils long under cultivation and subjected to some degree of erosion, through bad tillage practices.

Stephenson, R.E. and Schuster, C.E. Physical properties of soils that affect plant nutrition. *Soil Sci.* 44(1):23-36. July 1937.

Report based on the study of some 30 soils, mostly in walnut or filbert orchards.

### Soil Studies

Vlasoff, P.I. and Wheeting, L.C. Characteristics of certain soil profiles of southeastern Washington. *Soil Sci.* 44(1):65-82, illus. July 1937.

Wheeting, L.C. Changes in organic matter in western Washington soils as a result of cropping. *Soil Sci.* 44(2):139-149. August 1937.

"References," p.149.

Results of studies indicate that, contrary to the previously reported data, there has been an increase amounting to about 28 percent in the quantity of organic matter under cropping in western Washington. Under better systems of soil management western Washington soils have maintained a superiority over virgin soils for at least a 45-year cropping period.

### Terracing

Gum, E.P. The farmer's banker. *Banking* 30(1):27. July 1937.

"In Oklahoma our bankers, working through the agricultural committee of the Oklahoma Bankers Association, are cooperating with Government and state agencies and the American Bankers Association to help save our soil... We have secured the passage of a bill through our state legislature appropriating six power terracing machines for each county. Where this fails to take care of the demand of farmers who cannot afford their own terracing equipment it will be the purpose of our bankers to furnish a few homemade machines which can be constructed at a reasonable price. Through this method we may be able to furnish an outlet for the latent power ready to start the work of terracing thousands of our farms."

Hamilton, C.L. Terrace project planning. *Agr. Engin.* 18(7):315-317, illus. July 1937.

Presented before the Soil and Water Conservation Division at the annual meeting of the American Society of Agricultural Engineers, at Urbana, Ill., June 24, 1937.

Planning the proper correlation of terracing with other erosion control measures for the most suitable land utilization program is indicated to be essential as well as planning the design and construction.

LeMert, H.W. and Zingg, A.W. A method for finding terrace cross sections. *Agr. Engin.* 18(7):296, 300. July 1937.

### Trees and Erosion Control

Bregger, J.T. The role of nut trees in erosion control. *Penn. Nut Growers Assoc. Proc.* 5:20-22. 1937.

Hawley, F.H. Relationship of southern cedar growth to precipitation and runoff. *Ecology* 18(3):398-405. July 1937.  
Literature cited, p.405.

Preston, J.F. Forestry and soil conservation. *Amer. Forests* 43(8):394-396, 409, illus. August 1937.

Water Conservation

Cooke, M.L. Back to swamps. Farm Jour. 61(5):9, 56-57, illus. May 1937.

Questions soundness of the practice of digging ditches, draining swamps, getting rid of standing water and turning ground into farmland.

An examination of the subject has led the author to advocate swamp developments to conserve and utilize our water resources by promoting absorption and providing storage.

Howard, I.M. More moisture, more grass. Amer. Cattle Prod. 19(1):3-4, illus. June 1937.

"Where moisture is a limiting factor in grass production... contour ridging or contour furrowing of pasture land is an inexpensive and effective means of keeping water on the land where it falls so it can be utilized by the pasture plants. The ridges and furrows also control run-off water, check soil losses, hold organic matter where it can be used for grass production, and keep seeds from washing away."

Hutton, M.L. Upstream reservoirs. Many small lakes and ponds at the headwaters are of primary importance. Amer. Wildlife 26(3):39, 46-47. May-June 1937.

Presented at the meeting of the Iowa Engineering Society, March 3, 1937.

Discusses five types of upstream reservoirs: (1) natural lakes and their preservation and improvement, (2) pools created in streams, (3) artificial lakes, (4) farm ponds, (5) underground waters.

Cites interest of Iowa Conservation Commission in impounding water and quotes letter from R.W. Oberlin concerning work in Missouri and Iowa in the Big Creek Watershed Bethany project of the Soil Conservation Service.

Imlay, D.M. Urges conservation of water. Pateros man says every drop is valuable. Wash. Farmer 62(6):163. Mar. 18, 1937.

"There is one phase of the conservation question that it seems to me has not been given the attention and prominence that it deserves, and that is subsoiling or gashing, always paralleling the hillsides in any working. Why cannot we attach a digger-spring-tooth-jump spring or break-pin tooth behind each plow or disk to gash the soil, narrow but deep as it can run... This would leave plenty of hard soil for plants that prefer a solid base and let the water in deep so as not to puddle and bake the surface. There would be less evaporation and conserving conditions would be better."

Schoffelmayer, V.H. Capturing and storing run-off water. Cotton Trade Jour. (9th Internat'l. ed.) 17(18):113-114, illus. May 1, 1937.

Experiments show that this new approach to the cotton problem of the southwest United States, that of conserving moisture, increases crop yields.

Stanford, J.E. Wanted - more swamps! South. Agriculturist. 67(9):42, illus. September 1937.

"Although one of the primary purposes of swamp developments may be the conservation and utilization of our water resources by promoting absorption and providing storage, there are many direct, tangible benefits which may be produced. Droughts, floods, soil erosion and declining water tables are all forcing our nation to recognize the necessity for soil and water conservation, and in these programs bigger and better swamps and more of them must be given careful consideration."

## Water Conservation (Cont'd)

Wolman, Abel. Progress of federal conservation of water resources 1936-1937. Jour. Amer. Waterworks Assoc. 29(7):915-941. July 1937.

Presented at Buffalo convention, American Waterworks Association, June 1937.

Mentions basic hydrologic data and research in progress; bills introduced and laws passed covering pollution control, irrigation, flood control and beach erosion control; contributions toward a coordinated water plan by federal, state and interstate measures.

## Water Spreading

Nihollin, R.M. and Anthony, H.G. Water spreading at San Angelo. Soil Conservation 3(2):35-37, illus. August 1937.

Experiments on the San Angelo (Texas) project show that areas with slope of less than 1 percent are best suited for water spreading. Two principal methods are adapted on cultivated fields in this area: the "syrup pan" terrace systems and the rationing of run-off water to level closed-end terraces.

## Watershed Protection

Elliott, J.A. Watershed protection in the Tennessee valley. Prog. Farmer and South. Ruralist (Miss. Val. ed.) 52(9):54, illus. September 1937.

Winter cover crops for soil protection, winter pasture, and grain, as well as summer legumes for hay, pasture and soil building are being encouraged through community watershed organizations.

Cooperative ownership of clover hullers, lime crushers, and terracing equipment is also possible through organization.

## Wind Erosion

Bonnell, F.M. Maine's desert. Nature Mag. 30(2):114-115, illus. August 1937.

Within the past fifty or sixty years about three hundred acres of a farm near Freeport, Maine, have undergone a complete physical metamorphosis, sand dunes covering what was once fertile land.

Chase, Stuart. Disaster rides the Plains. American Mag. 124(3):46-47, 66-70, illus. September 1937.

How our great Western empire is being trampled to dust and what we can do to save it.

Easterday, A.H. Weed terraces. Soil Conservation 3(2):45-46, illus. August 1937.

At the Mansker demonstration project near Clayton, N.Mex., tumble weeds have been used as the binding medium in the formation of weed terraces to prevent wind erosion. These terraces must be stabilized by fibrous-rooted vegetative cover. These weed terraces serve as catchments for soil drift, act as barriers to run-off from rainfall and reduce wind velocities near the ground to permit plant seeds to lodge and grow.

Field, J.E. Rehabilitating the dust bowl and common sense solutions for the problems of other Great Plains drought areas. Civ. Engin. 7(9):609-613, illus. September 1937.

Reviews the developments of uses of Great Plains land; advocates use of supplemental water supplies, the return to grazing, and resodding of the dust bowl.

Wind Erosion, (Cont'd)

Martin,R.J. Dust storms of January-April 1937 in the United States. U.S.No. Weath.Rev.65(4):151-152. April 1937.

Contains extracts from a letter describing a trip through a portion of the Dust Bowl.

"Severe erosion occurred in some southeastern districts of Colorado during February 1937 and most wheat, and even buffalo grass, suffered."

Richardson,R.H. Some historical factors contributing to the problems of the Great Plains. Southwest.Social Sci.Quart.18(1):1-14. June 1937.

Presidential address delivered before the Southwestern Social Science Association, Dallas, Texas. March 26, 1937.

History of the populating and exploiting of the Great Plains.

Stephens,P.H. Why the dust bowl? Jour.Farm Econ.19(3):750-757. August 1937.

The author locates the Dust Bowl and gives historical statistical material on rainfall in this region. He states that farming on the contour has resulted in an increase in the penetration of rainfall. Expensive terraces are not necessary but inexpensive contour farming and strip cropping are sufficient and more practical.

BOOK AND PAMPHLET NOTES AND ABSTRACTS

Armer,L.A. The trader's children. 241 pp., illus. New York, Longmans, Green and co., 1937. 145 Ar5

A book written for children but one which will interest adults because of its authoritative information about Indians today, the desert country and the present effort to bring back the grasslands through the Soil Conservation Service.

The "soil erosion men" are frequently mentioned as the story develops around the coming of government engineers to build a dam to conserve water for the sheep on which Navajos depend for a living.

Buckwalter,A.R. Some experiments in leguminous cover crops for nut orchards. Pa.Nut Growers Assn.Proc.5:5-7. 1937. 94.69 P38 5th, 1937.

Call,L.E. New crops for the Great Plains region. Midwestern Conference of Agriculture, Industry and Science. Condensed proceedings, pages 17-22. 1937. 281.9 M585

The only crops that are well adapted to the unirrigated section of the Southern Plains are wheat and sorghums. The latter afford excellent protection to the soil during the winter and spring months when blowing occurs.

"If industrial uses could be found for a part of this potential grain sorghum production, it would aid in bringing into more rapid use those practices that are essential for the control of soil blowing."

[Canada. Experimental farms] Report of the work conducted under the Prairie farm rehabilitation act for the fiscal year 1935-36. 33pp., mimeogr.

[Ottawa, 1937?] 281.13 C164

"The Prairie Farm Rehabilitation Act was passed by the Parliament of Canada in April, 1935, to provide for the rehabilitation of drought and soil drift-

[Canada. Experimental Farms] (Cont'd)

ing areas in the provinces of Manitoba, Saskatchewan and Alberta."

Measures introduced to secure the most economical utilization of soil moisture for crops, to prevent soil drifting and to reclaim abandoned farm land are described in the report.

Chu,L.T. A reconnaissance soil survey of Ch'engtu area, Szechuan. Natl.Geol. Survey China. Soil Bull.18. 86pp., illus. February 1937.

The purpose of this study was to "get a brief idea of the soils and their related agriculture conditions."

The author states in his conclusion that "although the Ch'engtu area is essentially an agricultural region, the farmers are ignorant of modern agronomic technique. Erosion control, the drainage and irrigation of rice fields, are important problems which deserve great attention..."

Cleghorne,J.W. Soil erosion. Simple hints. Die Glen-Jaarblad; the Glen Annual 3(1):31-39, illus. 1935-1936. 56.7 C58

The most common difficulties of South African farmers in controlling soil erosion are treated and elucidated in the replies to the following questions: 1. Prior to the construction of a dam embankment, how are the bottom widths obtained and indicated on the site? 2. What should be the shape, sizes and fall of contour banks? 3. How can a sloot, which is extending uphill and laterally, be treated?

Hopkins,E.S., Palmer,A.E. and Chepil,W.S. Soil drifting control in the Prairies province. Canada Dept. Agr. Pub. 568. 2d. rev. ed. 51pp., illus. Ottawa, May 1937. 7 C16F

Among the control measures recommended are strip farming, summer fallow and cover crops.

Contains discussions of treatment of stubble land and various soil types, soil drifting and weed control, soil drifting and insect control, crop rotation in relation to soil drifting and machinery for soil drifting control.

Ladas,C.P. Crop rotation experiments in Greece. Salonika, Greece. Eidikas Stathiris Kall. Phyton. (Inst. Plant Breeding, Salonica, Greece) Sci. Bull. 22. n.p. 1936? 106.5 Sa3 no. 22.

Greek and English.

"The attempt to limit the practice of continual fall cropping with occasional fallowing has resulted from fear of probable loss of fertility and depletion of soils in a country like Greece with dryland agriculture."

Lobedev,A.F. Pochvnye i grundtovye vody. 315pp., illus. Moskva[etc.] 1936. 56.43 L49P

Bibliography, pp. 8-[10]

Soil and ground waters.

Loomis,W.E. and Shull,C.A. Methods in plant physiology. 472pp., illus. New York, McGraw-Hill book co., Inc., 1937. 463.3 L87

A laboratory manual and research handbook for the worker in plant physiology, farm crops, forestry, genetics and horticulture.

Partial chapter headings are: Water relations of plants; Transpiration; Measurement and control of plant environment.

There is also a chapter on statistical methods by George W. Snedecor.

Nebraska state board of agriculture. Annual report for the year 1936. 775pp., illus. [Lincoln, 1937] 2 N27R 1936

Partial contents: A practical program for soil conservation, by M.F. Miller, pp. 185-194; Plans for the wider use of native and introduced grasses for soil conservation in Nebraska, by Jess Fults, pp. 235-240; The relation of rainfall distribution, soil, moisture and crop rotation to the yield of potatoes at the Box Butte experiment farm, by H.O. Werner, pp. 715-731; Maintenance of organic matter in dry-land soils, by L.L. Zook, pp. 737-747.

Nebraska state planning board. Water resources of Nebraska. 695pp., processed. [Lincoln] December 1936. 280.7 N27W

Information as to geology, topography, climate, streams, surface and ground water utilization, irrigation and flood problems as given for eleven river basins of Nebraska.

North Dakota state planning board. Summary report of a plan of water conservation for North Dakota. 5 vls. [Fargo?] January 1, 1937. 280.7 N81Sm

Contents: v.1. Red River of the North drainage basin. Dakota Wild Rice river, Chyenne river, Lower Red River area.-v.2. James river drainage basin.v.3. Souris and Devils Lake drainage basins.-v.4. Missouri River and minor tributaries drainage basin.-v.5. Slope area drainage basin. Knife river, Heart river, Cannonball river, Grand river, Little Missouri river, Yellowstone river.

Rhodesia, Southern. Department of agriculture and lands. Report...for the year 1936. 39pp. Salisbury, 1937. 24 R344 1936.

Water conservation, page 3.

Soil conservation, page 3.

Abstract of the report of the irrigation division, pp. 26-29. Mentions soil and water conservation.

Smith, J.R. Men and resources; a study of North America and its place in world geography. 729pp., illus. New York, Harcourt, Brace and co., 1937. 278.11Sm6 "Further reading" at end of each chapter.

This geography textbook, intended for young people, is of interest because of the emphasis placed on the intelligent use of resources in contrast to the wasteful practices of the frontiers-men.

Frequent use has been made of Soil Conservation Service illustrations of soil conserving practices and attention is given to soil loss by wind and water erosion.

Soil science society of America. Proceedings 1936. 526pp., processed. Ann Arbor, Michigan, Edwards Brothers, Inc., 1937. 56.9 Sc3 v.1, 1936.

Partial contents: The effect of calcium on the erodibility of soils, by T.C. Peele, pp. 47-51; Some moisture relation of soils from the erosion experiment station, by L.B. Olmstead, pp. 61-64; Some field observations with tensiometers, by L.A. Richards and O.R. Neal, pp. 71-91; Peat land in the service of flood control and water conservation, by A.P. Dachnowski Stokes, pp. 319-321; Conditions in the so-called dust bowl as revealed by a recent soil conservation survey, by A.H. Joel, pp. 343-344; The application of aerial photography to land use problems, by M.S. Wright, pp. 357-360; Technology of erosion control, by M.L. Nichols, pp. 393-399; Hydrologic interrelations of water and soils, by R.E. Horton, pp. 401-420; Soil characteristics influencing the movement and balance of soil moisture, by L.D. Baver, pp. 431-437; Effect of soil characteristics on plant development in relation to water conservation, by M.R. Huberty, pp. 439-446; Public and private aspects of soil conservation, by G.S. Wehrwein, pp. 447-452; The significance of climatic

Soil science society of America. (Cont'd)

studies in agricultural research, by C.W.Thornthwaite, pp.475-480; The mechanics of soil erosion and its control, by H.L.Cook, pp.487-494; Previsional problem areas in soil conservation research in the United States, by E.A.Norton, pp.495.

South Africa. Department of agriculture and forestry. Anti-soil erosion and small dams scheme. Specifications of small dams; preliminary inspections. So. Africa.Dept.Agr.and Forestry. Circ.19. 15pp.,illus. Pretoria,1936. 24 So82 no.19

South Africa. Department of agriculture and forestry. Regulations governing the anti-soil erosion and small dam schemes. SoAfrica.Dept.Agr.and Forestry. Circ.22. 37pp. Preteria,1937. 24 So82 no.22

#### STATE PUBLICATIONS

##### Indiana

Baker,C.E. The relation of nitrogen and soil moisture to growth and fruitfulness of apple trees under different systems of soil management. Ind.Agr.Exp. Sta.Bull.414. 36pp.,illus. November 1936. 100 In2P no.414

During investigations conducted at Purdue University "total nitrogen was found to be highest in soils on which legumes were grown and to which nitrogen fertilizer was applied each year...Soil moisture was highest during dry periods on the legume plots where abundant organic matter was present and where deep rooted legumes were not making an active growth. Grass or legume covers greatly reduced the surface run-off of rainfall, maintaining a more satisfactory moisture supply than existed under cultivated soil where surface run-off was heavy and where erosion was serious even on relatively level land."

##### Kansas

Kansas agricultural experiment station. Eighth biennial report of the director 1934-1936. 144pp. Topeka,1937. 100 K13S 8th, 1934-35-1935-36.

The drought of 1934 and soil blowing; pp.9-11.

Soil conservation; pp.28-35.

Soil erosion and water conservation investigations, Fort Hays branch experiment station; pp.123-124.

##### Michigan

Partridge,N.L. Soil erosion in Michigan orchards. Mich.Agr.Exp.Sta.Circ.Bull. 162. 35pp.,illus. East Lansing,June 1937. 100 M58S Circ.162.

##### Missouri

Clark,M.W.and Tascher,W.R. Conserving soil by contour farming. Mo.Agr. Col.Ext.Circ.365. 14pp.,illus. Columbia,May 1937. 275.29 M69C no.365

Tascher,W.R.and Clark,M.W. Conserving soil by strip cropping. Mo.Agr.Jgt.Ext. Circ.368. 8pp.,illus. Columbia,June 1937. 275.29 M69C Circ.368.

Rotation strip cropping; procedure for laying out fields for rotation strip cropping; field stripping; pasturing strips; buffer stripping;suggestions for laying out buffer strips;and buffer strips used preparatory to terracing.

Montana

Roitz,L.P. Crop regions in Montana as related to environmental factors. Mont. Agr.Exp.Sta.Bull.340. 84pp.,illus. May 1937. 100 N76[b] no.340.

Climatic factors, precipitation and evaporation, temperature, wind and snow cover are discussed. Soil is given recognition as an important influence but is expected to be given fuller discussion in a later bulletin.

New Mexico

Watkins,W.E. The calcium and phosphorus contents of important New Mexico range forages. New Mex.Agr.Exp.Sta.Tech.Bull.246. 75pp.,illus. State College, April 1937. 100 N465[t] no.246.

Bibliography,pp.73-75.

Virginia

Hester,J.B.and Shelton,F.A. Soil organic matter investigations upon coastal plain soils. Va.Truck Exp.Sta.Bull.94. 1428pp.,illus. Norfolk,January 1, 1937. 100 V813B no.94.

U.S. GOVERNMENT PUBLICATIONS

Dept. of Agriculture

Baker,O.E. A graphic summary of physical features and land utilization in the United States. U.S. Dept.Agr.Hisc.Pub.260. 57pp.,illus. May 1937. 1 Ag84M no.260.

Burke,R.T.A.,Simmons,C.S.,Hosterman,J.L.,Marshall,Richard and Atkinson,C.H. Soil survey of Indiana county,Pennsylvania. U.S.Bur.Chem.and Soils. Series 1931,no.27. 52pp.,maps. [1937] 1 So32F 1931,no.27.

In cooperation with the Pennsylvania State College,School of Agriculture and Experiment Station.

Cooperrider,C.K.and Hendricks,B.A. Soil erosion and stream flow on range and forest lands of the upper Rio Grande watershed in relation to land resources and human welfare. U.S.Dept.Agr.Tech.Bull.567. 87pp.,illus. May 1937. 1 Ag84T no.567.

Literature cited, pp.87-88.

Striking evidences of accelerated erosion in this region are channeled valleys,arroyos,gullied slopes and sand washes,altered courses of mountain streams,accumulations of stones and sand and disappearance of luxuriant valley grasses and soils.

Destructive effects of accelerated run-off are evidenced by destruction of primitive irrigation works,silting up of river channels and reservoirs,flood destruction around Elephant Butte Dam,destruction to recreational and wildlife resources.

Causes of deterioration of range and forest lands are mentioned as well as vegetation-erosion relationships.

Dept. of Agriculture (Cont'd)

Gabrielson, I.H. The correlation of water conservation and wildlife conservation. Talk by...chief, Bureau of Biological Survey at National Rivers and Harbors Congress...Washington, D.C., April 26, 1937. 5pp., mimeogr. [Washington, D.C.] 1937. 1.9B52A  
Issued by U.S.Biological Survey.

Hastings, S.H. Irrigated crop rotations at the Huntley (Mont.) field station, 1912-35. U.S.Dept.Agr.Tech.Bull.571. June 1937. 1 Ag84T no.571.  
"Literature cited," p.37.

Results of rotation experiments undertaken for the purpose of ascertaining the crops, treatments, and sequences most likely to maintain the productivity of the soil where irrigation is practiced and at the same time develop a cropping program that would yield satisfactory per-acre returns.

The years covered are 1927 to 1935.

Henderson, W.C. Range conservation and rodent control. 10pp., mimeogr. [Washington, D.C., 1937] 1.9B52Add  
Issued by U.S.Biological Survey.

Kell, W.V. Strip cropping for soil conservation. U.S.Dept.Agr.Farmers'Bull. 1776. 37pp., illus. June 1937. 1 Ag84F no.1776.

Types of strip cropping, methods, advantages and economies such as reduction of soil loss, increase in yields and farm income, savings for highway departments, reduction on fertilizer costs and economies in farm power.

Latimer, W.J., Perkins, S.O., Lesh, F.R., Smith, L.R. and Goodman, K.V. Soil survey (reconnaissance) of Vermont. U.S.Bur.Chem.and Soils. Series 1930, no.43. 80pp., maps. [1937] 1 So32F 1930, no.43.

In cooperation with the Vermont Agricultural Experiment Station and Vermont Commission on Country Life.

Literature cited: p.80.

Layton, H.H. and Breising, O.H. Soil survey of Mayes county, Oklahoma. U.S.Bur. Chem.and Soils. Series 1932, no.19. 38pp., illus. March 1937. 1 So32F 1932 no. 19.

In cooperation with the Oklahoma Agricultural Experiment Station.

Lesh, F.R., Geib, W.J., Shearin, A.E., Wonser, C.H. and Lee, W.D. Soil survey of Abbeville county, South Carolina. U.S.Bur.Chem.and Soils. Series 1932, no.18. 36pp., map. March 1937. 1 So32F 1932, no.18.

In cooperation with the South Carolina Agricultural Experiment Station.

Perkins, S.O. and Goldston, E.F. Soil survey of Brunswick county, North Carolina. U.S.Bur.Chem.and Soils. Series 1932, no.17. 40pp., illus. February 1937. 1 So32F 1932, no.17.

In cooperation with the North Carolina Department of Agriculture and North Carolina Agricultural Experiment Station.

Piemeisel, R.L. and Lawson, F.R. Types of vegetation in the San Joaquin valley of California and their relation to the beet leafhopper. U.S.Dept.Agr.Tech. Bull.557. 28pp., illus. June 1937. 1 Ag84T no.557  
"Literature cited," p.28.  
"Under present conditions the reestablishment of the original vegetation

Dept. of Agriculture (Cont'd)

Picmciscl,R.L.and Lawson,F.R. (Cont'd)

is arrested by grazing on the range lands and by intermittent farming of the poorer cultivated lands..."At the present time the stand of winter annuals is deteriorating rapidly into range weeds, such as plantain and peppergrass, which are indicated to be the chief spring hosts of the beet leafhopper. On these the insect builds up the enormous populations that migrate to crops in the spring.

"The correction of the two uneconomical practices, intermittent farming and destructive grazing, is in accordance with the general principles of land conservation. Such a correction would also result in greatly reducing leafhopper populations and the curly top damage to crops."

Rabor,Oran. Water utilization by trees,with special reference to the economic forest species of the north temperate zone. U.S.Dept.Agr.Misc.Pub.257.

97pp. June 1937. 1 Ag84M no.257.

"Literature cited," pp.85-97.

Rowalt,E.M. Soil and water conservation in the Pacific northwest. U.S.Dept. Agr.Farmers' Bull.1773. 59pp.,illus. July 1937. 1 Ag84F no.1773.

This bulletin treats particularly of wheatlands and grazing lands, and measures recommended to control erosion of the soil by wind and water. Certain sections deal specifically with the conservation of water for the production of crops on nonirrigated lands and the conservation of water for irrigation purposes and flood control.

Partial contents: Yesterday in the Northwest,pp.1-5;Healing gullies,pp.27-31; In defense of the range,pp.38-49;Dune sands bound by grass,pp.51-53.

Simmons,C.S.,Burke,R.T.A.,Bushnell,T.H.,Adams,J.E.and Ulrich,H.P. Soil survey of Dubois county, Indiana. U.S.Bur.Chem.and Soils. Series 1930,no.45. 39pp., map. March 1937. 1 So32F 1930,no.45.

In cooperation with Purdue University Agricultural Experiment Station.

Suss,N.I. Achievements in the improvement of agricultural lands by forestation. U.S.For.Serv.Div.Silvics.Trans.286. 23pp.,illus.,mimogr. [Washington,D.C.] November 1936. 1.9 F76Tr no.286.

From Selksoe Khoziaistvo S.S.S.R.Ezhegodnik 1935. pp.172-183,Moscow,1936. Translated by C.P.de Blumenthal.

The problem of cultivating sand areas; shelterbelts gullies,wash-outs and erosion.

U.S.Forest service. Range plant handbook. v.p.,illus. Washington,U.S.Govt. print.Off.,1937. 1 F76Rp

"Its intended audience is primarily busy field administrative men who are not specialists in botany; its chief purpose is twofold:(1)To evaluate for such persons,in as succinct,understandable,complete and useful form as possible, the relative importance of some 300 or more of the outstanding 'key' plants of western ranges as regards grazing,watershed protective cover,recreational and other uses; and (2) to enable the ready field identification of these plants in order to insure the correlation of the proper management data with each species."

U.S. Geological Survey

Follansbee, Robert and Spiegol, J.B. Flood on Republican and Kansas rivers, May and June 1935. U.S.GeoL Survey. Water Supply Paper 796-B. 52pp., illus. Washington, D.C., 1937. 407 G29W no.796-B.

Rainfall, topography of the river basin, flood discharges, daily discharge at gaging stations.

Grover, N.C., Bigwood, B.L., Dirzulaitis, J.J., Harrington, A.W., Hartwell, O.W. et al. Surface water supply of the United States 1935. Part 1. North Atlantic slope basins. U.S.GeoL Survey. Water-supply paper 781. 421pp. Washington, 1937. 407 G29W no.781.

Grover, N.C., McGlashan, and Canfield, G.H. Surface water supply of the United States 1936. Part 11. Pacific slope basins in California. U.S.GeoL Survey. Water-supply paper 811. Washington, D.C., 1937. 407 G29W no.811.

Miscellaneous

Bailey, R.L. and Croft, A.R. Contour-troughs control floods and erosion on range lands. U.S.Emergency Conserv.Work.Forestry Pub.4. 22pp., illus. Washington, May 1937. 173.2 C76F no.4.

"The purpose of this publication is to show the relation of the contour-trough system of flood and erosion control to the broader aspects of upstream engineering applicable to the Intermountain region, to describe the system in detail, and to give instructions for its application in the field, including methods of analyzing problem areas."

U.S. National resources committee. Subcommittee on technology. Technological trends and national policy including the social implications of new inventions. 388pp., illus. Washington, U.S.Govt.print.off., 1937. 173.2 I214T

This is "the first major attempt to show the kinds of new inventions which may affect living and working conditions in America in the next 10 to 25 years." It is in three main parts. Part three is a survey of technology in the fields of agriculture, the mineral industries, transportation, power, etc. Section I of this part is on agriculture and was prepared under the direction of S.H.McCrory, chairman, and Roy F.Hendrickson, secretary of the Committee on Technology of the U.S.Department of Agriculture.

Partial contents: Soil; its use and conservation, by J.K.Ablciter and Leland Barrows, pp.120-123.

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